Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) Circuitry for maintaining data integrity across data links, said circuitry comprising:

an encoding circuit for dividing a data frame into a plurality of data sub-packets and inserting a plurality of sequential identification packets in between said plurality of data sub-packets;

a transmitter circuit for transmitting said data sub-packets with said inserted plurality of sequential identification packets;

a receiver circuit for receiving ~~at least~~ a sub-plurality of said transmitted data sub-packets and said sequential identification packets; and

a decoding circuit [[for]] for:

identifying each of said received sequential identification packets, [[and]]

storing each of said received data sub-packets, wherein said received data sub-packets are stored in the sequence of said data frame in response to identifying each of said received sequential identification packets wherein the stored data includes data positions representing the sub-plurality of data packets not received by the receiver circuit, and

recovering the sub-plurality of data packets not received using the stored data sub-packets.

2. (Currently Amended) The circuitry of claim 1, wherein:

said encoding circuit comprises forward error correction encoding circuitry for encoding said data frame; and

said decoding circuit comprises forward error correction decoding circuitry for ~~decoding said stored sub-packets~~ recovering the sub-plurality of data packets not received.

3. (Previously Presented) The circuitry of claim 1, wherein said dividing comprises dividing said data frame into a plurality of equally sized data sub-packets.

4. (Original) The circuitry of claim 1, wherein said decoding circuit further comprises a counter circuit for counting the amount of time between each of said identified plurality of sequential identification packets.

5. (Original) The circuitry of claim 1, wherein said decoding circuit further comprises a counter circuit for counting the amount of data said decoding circuit receives between each of said identified plurality of sequential identification packets.

6. (Currently Amended) Circuitry for maintaining data integrity across data links, said circuitry comprising:

an error correction encoding circuit for converting a data stream into at least one error correction encoded data frame;

a dividing circuit for dividing said at least one error correction encoded data frame into a plurality of data sub-packets and for inserting a

plurality of identification packets in between said plurality of data sub-packets, each of said identification packets associated with one of said plurality of data sub-packets, and each said identification packets storing information on the position of said associated data sub-packet within said error correction encoded data frame;

a reconstructing circuit for detecting ~~at least~~ a sub-plurality of said plurality of identification packets ~~within~~ inserted between said plurality of data sub-packets and for reconstructing said at least one error correction encoded data frame, said reconstructing comprising inserting each of said detected data sub-packets into said reconstructed data frame according to said position information stored in each of said associated identification packets, and wherein the reconstructed data frame includes data positions for a sub-plurality of data packets not detected by the receiver circuit; and

an error correction decoding circuit for decoding said reconstructed data frame by recovering the sub-plurality of data packets not detected using the data sub-packets stored in the reconstructed data frame.

7. (Original) The circuitry of claim 6, said error correction encoding circuit comprising Reed Solomon encoding circuitry.

8. (Original) The circuitry of claim 6, said error correction encoding circuit comprising data interleaving circuitry.

9. (Original) The circuitry of claim 6, further comprising a clock data recovery circuit for deriving a reference clock signal from said data stream.

10. (Previously Presented) The circuitry of claim 6, wherein said dividing circuit divides said at least one error correction encoded data frame into a plurality of data sub-packets of a pre-determined size.

11. (Currently Amended) Circuitry for maintaining data integrity across data links, said circuitry comprising:

an error correction encoding circuit for converting a data stream into at least one error correction encoded data frame;

a dividing circuit for dividing said at least one error correction encoded data frame into a plurality of data sub-packets and for inserting a plurality of identification packets in between said plurality of data sub-packets, each of said identification packets associated with one of said plurality of data sub-packets, and each said identification packets storing information on the position of said associated data sub-packet within said error correction encoded data frame; and

a transmitter circuit for transmitting said plurality of data sub-packets and said plurality of associated identification packets across a data link, wherein

a decoder circuit receiving the a sub-plurality of the data sub-packets and their associated identification packets can reconstruct a data frame from the subplurality of received packets and recover the sub-

plurality of data packets not received using the data sub-packets stored in the reconstructed data frame.

12. (Previously Presented) The circuitry of claim 11, wherein said transmitter circuit further comprises a serializer circuit for serially transmitting said plurality of data sub-packets and said plurality of associated identification packets across a data link across said data link.

13. (Original) The circuitry of claim 11, wherein said transmitter circuit further comprises a circuit for encoding a reference clock signal within said divided error correction encoded data frame.

14. (Currently Amended) Circuitry for maintaining data integrity across data links, said circuitry comprising:

a receiver circuit operable to receive at least one data frame divided into a plurality of data sub-packets and further comprising a plurality of identification packets, each of said plurality of identification packets associated with one of said plurality of data sub-packets and storing information on the position of said associated data sub-packet within said data frame, said receiver circuitry comprising:

a reconstructing circuit for detecting ~~at least~~ a sub-plurality of said identification packets ~~within~~ inserted between said plurality of data sub-packets and for reconstructing ~~said~~ at least one data frame, said reconstructing comprising inserting each of said detected data sub-packets into said reconstructed data frame according to said position location information stored in each of said associated

identification packets, and wherein the reconstructed data frame includes data positions for a sub-plurality of data packets not detected by the receiver circuit; and

an error correction decoding circuit for decoding said reconstructed data frame by recovering the sub-plurality of data packets not detected using the data sub-packets stored in the reconstructed data frame.

15. (Previously Presented) The circuitry of claim 14, wherein said receiver circuit further comprises a de-serializer circuit for serially receiving said divided data frame across said data link.

16. (Previously Presented) The circuitry of claim 14, wherein said receiver circuit further comprises a circuit for receiving a reference clock signal encoded within said divided data frame.

17. (Currently Amended) A method for maintaining data integrity across data links, said method comprising:

dividing a data frame into a plurality of data sub-packets;

inserting a plurality of sequential identification packets in between said plurality of data sub-packets;

transmitting said data sub-packets with said inserted plurality of sequential identification packets;

receiving ~~at least~~ a sub-plurality of said transmitted packets;

identifying said each of said received sequential identification packets ~~within~~ inserted between said received data sub-packets;

storing each of said received data sub-packets following each of said sequential identification packets, wherein said received data sub-packets are stored in the sequence of said data frame in response to identifying each of the received sub-plurality of sequential identification packets, and wherein the stored data includes data positions for a sub-plurality of data packets not received; and

recovering the sub-plurality of data packets not received using the stored data sub-packets.

18. (Currently Amended) The method of claim 17, further comprising:

encoding said data frame with a forward error correction algorithm; and

~~decoding said stored sub-packets~~ recovering the sub-plurality of data packets not received with said forward error correction algorithm.

19. (Previously Presented) The method of claim 17, wherein said dividing comprises dividing said data frame into a plurality of equally sized data sub-packets.

20. (Original) The method of claim 17, said method further comprising counting the amount of time between identifying each of said plurality of sequential identification packets.

21. (Original) The method of claim 17, said method further comprising counting the amount of data received between identifying each of said plurality of sequential identification packets.

22. (Currently Amended) A method for maintaining data integrity across data links, said method comprising:

encoding data according to an error correction encoding algorithm into at least one error correction encoded data frame;

dividing said at least one error correction encoded data frame into a plurality of data sub-packets;

inserting a plurality of identification packets in between said plurality of data sub-packets, each of said plurality of identification packets associated with one of said plurality of said data sub-packets, and each of said plurality of identification packets storing information on the position of said associated data sub-packets within said error correction encoded data frame;

transmitting said plurality of data sub-packets and said plurality of inserted identification packets;

receiving ~~at least~~ a sub-plurality of said data sub-packets and said plurality of inserted identification packets;

detecting each of said received identification packets;

storing as at least one reconstructed data frame, each of said plurality of received data sub-packets associated with each of said detected identification packets according to said position information stored in each of said associated identification packets, and wherein the reconstructed data frame includes data positions for a sub-plurality of data packets not detected; and

decoding said stored data according to a forward error correction decoding algorithm by recovering the sub-plurality of data packets not detected using the data sub-packets stored in the reconstructed data frame.

23. (Original) The method of claim 22, wherein said encoding comprises Reed Solomon encoding.

24. (Original) The method of claim 22, wherein said encoding comprises data interleaving.

25. (Original) The method of claim 22, further comprising deriving a reference clock signal from said data stream.

26. (Previously Presented) The method of claim 22, wherein said dividing comprises dividing said at least one error correction encoded data frame into a plurality of data sub-packets of a pre-determined size.

27. (Currently Amended) A method for maintaining data integrity across data links, said method comprising:

encoding a data stream into at least one encoded data frame;

dividing said at least one encoded data frame into a plurality of data sub-packets;

inserting a plurality of identification packets in between said plurality of data sub-packets, each of said plurality of identification packets associated with one of said plurality of data sub-packets, and each of said plurality of identification packets storing information on the position of said

associated data sub-packets within said encoded data frame; and

transmitting said plurality of data sub-packets and said plurality of inserted identification packets, wherein

wherein a sub-plurality of the data sub-packets and their associated identification packets are received and are used to recover the sub-plurality of data packets that are not received.

28. (Original) The method of claim 27, wherein said transmitting further comprises serially transmitting said divided encoded data frame across a data link.

29. (Original) The method of claim 27, wherein said transmitting further comprises encoding a reference clock signal within said divided encoded data frame.

30. (Currently Amended) A method for maintaining data integrity across data links, said method comprising:

receiving at least one encoded data frame divided into a plurality of data sub-packets and further comprising a plurality of identification packets, each of said plurality of identification packets associated with one of said plurality of data sub-packets and storing information on the location of said data sub-packet within said encoded data frame, wherein said receiving comprises:

detecting ~~at least~~ a sub-plurality of said identification packets ~~within~~ inserted between said plurality of data sub-packets;

reconstructing ~~said~~ at least one error correction encoded data frame, said reconstructing comprising inserting each of said detected data sub-packets in said reconstructed data frame according to said location information stored in each of said associated identification packets, and wherein the reconstructed data frame includes data positions for a sub-plurality of data packets that were not detected; and

decoding said reconstructed data frame by recovering the sub-plurality of data packets not detected using the data sub-packets stored in the reconstructed data frame.

31. (Original) The method of claim 30, wherein said receiving further comprises de-serializing said received divided encoded data frame.

32. (Original) The method of claim 30, wherein said receiving further comprises receiving a reference clock signal encoded within said divided encoded data frame.